

# Glans clitoris innervation: PIEZO2 and sexual mechanosensitivity

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## Abstract

The clitoris is a leading player in female sexual arousal, if not the main protagonist. Despite this role, studies performed on this structure with specific neuroanatomical techniques are few. This study focuses on glans clitoris innervation, with special emphasis on sensory corpuscles and the presence of the mechanotransducer protein PIEZO2 in these structures. Six glans clitoris samples were obtained at autopsy covering an age spectrum between 52 and 83 years old. Several types of nerve terminations including free nerve endings, genital endbulbs as well as Meissner-like corpuscles and Pacinian corpuscles, but not Ruffini corpuscles, were found. Although corpuscular morphology in the glans clitoris was subtly different from the cutaneous digital counterparts, their basic composition was comparable for both Pacinian and Meissner-like corpuscles. Genital endbulbs showed heterogeneous morphology, and the axons usually exhibited a typical “wool ball” or “yarn ball” aspect. Some of them were lobulated and variably encapsulated by endoneurial elements (65%); from the capsule originate septa that divides the genital endbulbs, suggesting that they are found in clusters rather than as single corpuscles. In addition, most corpuscles in the glans clitoris showed axonal PIEZO2 immunoreactivity, thus, suggesting a mechanical role and molecular mechanisms of mechanosensitivity similar to those of digital Meissner's corpuscles. Our results demonstrate that sensory corpuscles of the glans clitoris are similar to those of other glabrous skin zones, as most genital organs are characterized by clusters of corpuscles and the occurrence of the mechanoprotein PIEZO2 in the axons. These findings strongly suggest that PIEZO2 participates in erotic and sexual mechanical sensing.

## Author keywords

clitoral innervation  
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sensory corpuscles